BUSINESS PROCESS REENGINEERING: A RECENT REVIEW

Hari Lal Bhaskar* and Dr. R.P. Singh**

ABSTRACT

Business process reengineering (BPR) is a tool to help organizations to improve Quality, customer services, cut operational costs and become leaders in their domain. BPR could act as an important strategic tool for sustained competitive advantage for foreign or Indian manufacturing companies (public and private) in the present context. This paper was conducted with the aim to collect and review the work done so far in the field of BPR and quality management. Focus of this study was on providing a comprehensive overview of overall development of BPR concept, theories, approaches, challenges and outcomes. Conclusion drawn was based on the previous research studies and it was concluded that application of BPR in Indian manufacturing sector is not difficult, despite the fact that the situations are different and the reasons for adaptation vary in this sector. There is still a need for exclusive and universally acceptable model for BPR as well as a commonly applicable methodology.

Keywords: Business Process Reengineering; Application of BPR; Quality Management; Manufacturing organizations; Organizational culture; Customer satisfaction; Success factors.

INTRODUCTION

The concept of reengineering traces its origins back to management theories developed as early as the nineteenth century. The purpose of reengineering is to “make all your processes the best-in-class.” Frederick Taylor suggested in the 1880’s that managers could discover the best processes for performing work and reengineer them to optimize productivity. BPR echoes the classical belief that there is one best way to conduct tasks. In Taylor’s time, technology did not allow large companies to design processes in a cross-functional or cross-departmental manner. Specialization was the state-of-the-art method to improve efficiency given the technology of the
Business Process Reengineering: A Recent Review

In the early 1900’s, Henri Fayol originated the concept of reengineering: “To conduct the undertaking toward its objectives by seeking to derive optimum advantage from all available resources.” Although the technological resources of our era have changed, yet the concept still holds. About the same time, another business engineer, Lyndall Urwick stated, “It is not enough to hold people accountable for certain activities, it is also essential to delegate to them the necessary authority to discharge that responsibility.” This warning predicts the idea of worker empowerment which is central to reengineering.

BPR is often used by companies on the brink of disaster to cut costs and return to profitability. The danger is that during this process the company may slash its capacity for future growth. One of the hazards of BPR is that the company becomes so wrapped up in “fighting its own demons” that it fails to keep pace with its competitors in offering new products or services. Reengineering focuses on changing existing business practices. This impairs the entire reengineering process, as it stifles innovation in finding new ways to compete. BPR falls short when dealing with new products or services, since “any strategic objectives achieved simply by the improved productivity and quality of product. Strategic reengineering addresses this shortcoming by focusing on designing the organization to compete. This is accomplished by undertaking strategic initiatives at the start of the reengineering process. These initiatives seek to provide understanding of the markets, competitors, and the position of the organization within the industry. Critical success factors required to compete are identified and prioritized. Only then is individual business processes addressed. To be successful, business process reengineering projects need to be top down, taking in the complete organization, and the full end to end processes. It needs to be supported by tools that make processes easy to track and analyze.

The purpose of writing this chapter is to help demystify the technique of Business Process Reengineering (BPR). This is materialized in this chapter through a review of the literature covering the developments in this field so far. Articles published in the leading business journals and the more popular business magazines are included in the review, as well as books published on the topic. This Chapter first discusses the need for reengineering and then reviews the literature under the following headings: definition/meaning of BPR, BPR tools and techniques, BPR and TQM co-existence, understanding organizational processes, the reengineering challenge, and organizational redesign using BPR etc. The review shows that considerable confusion exists as to exactly what constitutes BPR. Authors place different emphasis on the definition of BPR and the many outcomes possible with BPR.

REVIEW OF THE LITERATURE

Defining BPR

There is no universally accepted definition of business process reengineering. There are almost as many definitions of BPR as there are authors publishing on the topic, we can identify multiple aspects that they have in common. Let us first review a number of definitions. Davenport and Short (1990) define BPR as: “The analysis and design of work flows and processes within and between organizations”. Hammer and Champy (1993) define BPR as, “The fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service,
and speed.” Other authors such as Talwar (1993) have focused on the rethinking, restructuring and streamlining of the business structure, processes, methods of working, management systems and external relationships through which value is created and delivered.

Petrozzo and Stepper (1994), on the other hand, believe that BPR involves the concurrent redesign of processes, organisations, and their supporting information systems to achieve radical improvement in time, cost, quality, and customers’ regard for the company’s products and services. While Lowenthal (1994) describes the fundamental rethinking and redesign of operating processes and organisational structure, the focus is on the organization’s core competencies, to achieve dramatic improvements in organisational performance, as BPR’s essential components.

Although the definition by Davenport and Short (1990) is much narrower, their description of the concept is as far-reaching. In practice, both TQM and BPR have focused on the definition and operation of business processes to produce products and services within a defined business scope. However, neither TQM nor BPR have focused on strategic business direction setting or planning, but, of course, these may be necessary components in achieving this vision. Also each methodology, in it’s own right, does not have the intention or the capability of reinventing business or industry. More importantly, only one of these definitions refers to information systems. It can thus be said that BPR is not necessarily dependent on IT solutions. There is general agreement that IT can be a powerful enabler, with the radical improvements sought more a function of organisational process redesign, rather than IT implementation (Gadd and Oakland, 1995; Hammer and Champy, 1993). While IT specialists insist that new systems are central to BPR, the challenge is increasingly one of the implementation of organisational change and the visioning involved in that change, rather than the technology itself (Wastell et al., 1994).

Where there is confusion, it is in both the interpretation and the scope of the organisational change concept. Hammer (1990) referred to business process reengineering, while Davenport and Short (1990) to business process redesign. However, there are still many other authors with variations on these terms, all referring to process changes large and small. For example:

- Business process improvement (Harrington, 1991a),
- Core process redesign (Kaplan and Murdoch, 1991),
- Process innovation (Davenport and Short, 1990),
- Business process transformation (Burke and Peppard, 1993),
- Breakpoint business process redesign (Johansen et al., 1993),
- Organisational reengineering (Lowenthal, 1994),
- Business process management (Duffy, 1994),
- Business scope redefinition (Venkatraman, 1994),
- Organisational change ecology (Earl et al., 1995), and
- Structured analysis and improvement (Zairi, 1997).

While some of these terms are clearly referring to a generic business process improvement model on a large scale, other authors (Watkins et al., 1993; Earl and Khan, 1994) point out that
reengineering can be performed at a variety of different levels within the organisation. This is exemplified in IBM’s reengineered finance process, which yielded large percentage improvements in costs, time, and quality, but had little effect on overall performance, because it was not a core process central to the strategy of the company (Currid, 1994). Put into strategic context, BPR becomes a means of aligning work processes with customer requirements in an interactive way, in order to achieve long-term corporate objectives. To achieve this, Senge (1990); Deming (1993) advocate a systems outlook involving customers, suppliers, and the future. Gulden and Reck (1991) support this view by showing that the secrets to designing a process lay not so much in intimately understanding the way it is performed today, but rather in thinking about how to reshape it for tomorrow.

Hammer and Champy (1993) went further to identify three kinds of companies that undertake reengineering. (1) Companies that find themselves in deep trouble. They have no choice. If a company’s costs are an order of magnitude higher than the competition’s or than its business model will allow, if its customer service is so abysmal that customers openly rail against it, if its product failure rate is higher than the competition’s, if, in other words, it needs order-of-magnitude improvement, that company clearly needs business reengineering. (2) Companies that are not in trouble but whose management can see trouble coming. (3) Companies that are in peak condition and see an opportunity to develop a lead over their competitors.

BPR is an improvement philosophy. It aims to achieve improvements in performance by redesigning the processes through which an organization operates, maximizing their value added content and minimizing everything else. This approach can be applied to an individual process level or to the whole organization. The BPR exercise necessitates several changes in an organization’s existing processes. Hence, organizations should be ready to accept the defined changes. BPR also impacts people, which is a very critical factor (especially in a country like India). So the CIO should bring it to his CEO’s notice that this may bring drastic changes and that the organization should be prepared for it. These are the key things to be dealt with before making decisions.

**BPR Tools and Techniques**

The various definitions of BPR suggest that the radical improvement of processes is the goal of BPR. They do not, however, refer specifically to the tools and techniques used in reengineering business processes. The result of this void is that authors and consultants alike have pursued the use of many different tools in the search for the best reengineering application. These tools and techniques include the following:

- **Process visualisation:** While many authors refer to the need to develop an ideal “end state” for processes to be re-engineered, Barrett (1994) suggests that the key to successful reengineering lies in the development of a vision of the process.

- **Process mapping/operational method study:** Cypress (1994) suggests that the tools of operational method studies are ideally suited to the reengineering task, but that they are often neglected. Recent evidence suggests that these concepts have been incorporated into tools such as IDEF0 (Integrated Definition Method), DFD (Data Flow Diagrams), OOA (Object Oriented Analysis) (Yu and Wright, 1997), and Prince2 (Process based Project Management, see internet reference: Prince2).
• **Change management:** Several authors concentrate on the need to take account of the human side of reengineering, in particular the management of organisational change. Some authors (e.g. Mumford and Beekma, 1994; Bruss and Roos, 1993) suggest that the management of change is the largest task in reengineering. Kennedy (1994), on the other hand, incorporates the human element of reengineering due to the perceived threat it has on work methods and jobs.

• **Benchmarking:** Several authors suggest that benchmarking forms an integral part of reengineering, since it allows the visualisation and development of processes which are known to be in operation in other organisations (Harrison and Pratt, 1992; Chang, 1994; Furey, 1993).

• **Process and customer focus:** The primary aim of BPR, according to some authors, is to redesign processes with regard to improving performance from the customer’s perspective (Chang, 1994; Vantrappen, 1992). This provides a strong link with the process improvement methodologies suggested by authors from the quality field, such as Harrington (1991a). In some cases, notably Chang (1994), the terminology is almost identical to that used by quality practitioners in the improvement of processes. The major difference, as outlined earlier, appears to be one of scale.

It should be noted that few authors refer to any single technique when discussing BPR. Most incorporate a mixture of tools, although the nature of the mix depends on the application, whether it be hard (technological) such as proposed by Teng et al. (1994) or soft (management of people), as seen from Mumford and Beekma (1994). While the exact methodologies to be used are the source of some discussion, it can be seen that BPR, as a strategic, cross-functional activity, must be integrated with other aspects of management if it is to succeed. This is particularly true, since it is not the methodologies themselves, but rather the way that they are used which is unique in BPR (Earl and Khan, 1994). Of particular interest are the links between BPR and TQM.

In summary, therefore, BPR can be seen to represent a range of activities concerned with the improvement of processes. While some authors appear to suggest that tools and techniques are the key, most authors suggest that a strategic approach to BPR, and the development of a BPR strategy is the key to success (Guha et al., 1993; Bruss and Roos, 1993). There seems little doubt in either the literature or in practice that efforts on the scale of BPR must be strategically driven and supported by senior management if they are to succeed (Gadd and Oakland, 1996; Barrett, 1994; O’Neill and Sohal, 1998).

**THE DEVELOPING QM AND CONTINUOUS IMPROVEMENT AGENDAS**

Throughout the 1980s and 1990s, effective QM represented a key competitive advantage for a number of leading companies such as Toyota, Motorola, AT&T, Hewlett-Packard, and Xerox (Hayes 2005). QM concepts were developed in parallel with the evolution of new operations management ideas, the emergence of new quality-related techniques, and developing IT possibilities. QM evolution can be divided into four major phases or stages: (1) Inspection, (2) Statistical Process Control, (3) Quality Assurance, and (4) Strategic Quality Management (Garvin 1988; Rommel 1996; Dahlgaard 1999; Dooley 2000). Over a decade ago, Hodgetts et
al. (1994) depicted modern organisations as those which made a fundamental shift from a Total Quality (TQ) paradigm towards a Learning Organisation (LO) and later a World-Class organisation (a term that is no longer so fashionable). Later authors have extended this theme, suggesting that organizations must sustain major improvements, maintain high performance and aim towards being an ‘Excellent-Sustainable’ organisation (Joseph & William 2004). Hence, a fifth stage of development, related to QM, may now be distinguished. It emphasises the importance of the flexible organisation, responsive and able to adapt quickly to changes, responding to customer feedback and benchmarking against competitors.

The literature related to World Class and Excellent-Sustainable organisation has emphasised the ceaseless pursuit of perfection or CI in all operations (Hamel 2001; Swinehart 2000; Joseph & William 2004). Although many companies now use CI for breakthrough innovation and new technology development (Sower & Fair 2005), incremental improvement is still important to achieve long-term and sustainable success. As indicated above, in the current highly competitive business environment both continual improvement and dramatic innovation must be undertaken simultaneously (Hamel 2001; Brown 2000).

Organisational Development

![Figure 1: Evolution of organisational paradigm and origins of QM and CI approaches](image)

QM themes remain very significant in business, although the concept has been broadened and is now often expressed in the language of business or organizational excellence (Sun et al. 2004). Quality Management has been woven and absorbed into broader business management themes, developing together towards a goal of building excellent-sustainable organisations. Cole (1998) explained that: ‘By the mid-and the late 1990, quality disappeared as a major topic in the
media and was less and less a focus of top management’s attention. This is a natural process manifested in the growing normalization of quality improvement as a management activity. In this process, simplified versions of the more formal and often complex quality methodologies gradually evolved.’

At the same time, the ISO 9000 series standards showed extraordinary growth and application, and represent, perhaps, one of the most remarkable international standardisation efforts ever attempted. Companies using ISO 9001 as their major QM theme are typically smaller and less developed in organisational terms, but many of them subsequently aspire to TQM or excellence awards. A broad historical perspective shows that QM and CI approaches have emerged as a number of waves, with different origins, spread, time-scales and influence. Figure 1 attempt to illustrate the origin of key QM and CI approaches along with the evolution of the organisational paradigm over time.

Japan and the United States have pioneered and developed most of these methods; but they travel across the globe and have been adopted and adapted in countries with different industrial cultures. Internationally, differences in QM and CI practices and timing continue. For example, using a combination of traditional Kaizen and Lean production over the period from 1994 to 2001, Japanese automotive plants showed remarkable productivity improvement and defect rates reduction, compared with those in the United States and Britain (Oliver 2002). During the same period, the impact of BPR to force radical organisational change was felt most strongly in the USA, and to some extent Europe. Currently in the USA, Six Sigma, Lean and TQM appear to be the best-liked concepts (McNeil & Greatbank 2002; Charles worth 2000). In Europe, the ISO 9001 and TQM are still popular, and in Asia the ISO9000, Kaizen, 5S and TQM are favourite techniques (Wheatley 1998).

**BPR and TQM Coexistence**

TQM (Total Quality Management) is “an approach to improving the competitiveness, effectiveness and flexibility of a whole organisation. It is essentially a way of planning, organising and understanding each activity, and depends on each individual at each level” (Oakland, 1993). TQM involves placing the customer as the focal point of operations. Its aim is to continuously improve process performance, in order to satisfy customer requirements (Bennis, 1992). It involves the bottom-down communication and deployment of objectives, and the bottom-up implementation of continuous improvement activities. At the centre of TQM is the concept of the management of processes, and the existence of internal suppliers and customers within organisations. Organisations which have adopted TQM are likely to have developed an understanding of the processes which are operated, and attempt to make the customer the target of improvement activities (Oakland, 1993).

BPR also emphasizes focus on the process. However, authors such as Klein (1993) suggest that BPR is much more radical than TQM, while others, notably Davenport (1993a); Harrison and Pratt (1992) suggest that TQM and BPR can and should form an integrated strategic management system within organisations. Davenport (1993c) suggests there is a need to undertake process analysis, in order to identify which processes should be reengineered, and which should be managed on the basis of continuous improvement. The situation is in reality less clear-cut than reengineering versus continuous improvement, since improvement activities form a continuum.
from small incremental improvements to wholesale radical restructuring of an operation (Gadd and Oakland, 1996).

There have been an increasing number of articles calling for the need for both continuous and discontinuous improvement. For example, Hammer (1990) suggested that they should both fit under the umbrella of process management, while authors such as Chang (1994); Furey (1993); Taylor (1993) described programmes that integrate TQM and BPR as management tools. Hammer (1991) described sequential performance improvements using the two techniques and warned against using the two approaches concurrently.

Several authors of papers on BPR appear to consider continuous improvement of processes to be the only link to TQM. However, other aspects of the management of processes are considered equally important in both TQM and BPR, including:

- Benchmarking (D’Aveni, 1995; Harrison and Pratt, 1992),
- Culture change (Barrett, 1994; Batlett and Ghosal, 1995; Ghosal, 1995) and
- Performance measurement (Hagel, 1993; Guha et al., 1993).

While improvements usually happen through small steps, Kano (1993) contends that the continuous accumulation of these can lead to radical breakthroughs. Juran (1964) goes even further to state that quality improvement teams can move directly to major innovations of a “breakthrough” kind. Hill and Wilkinson (1995) have also made clear that, while the BPR critique misunderstands the nature of TQM, it is possible that the practice of TQM in many organisations may have contributed to the misperception. Some TQM implementations are used to generate only incremental improvements and thus are a partial form of TQM that operates primarily among low-level employees, where small-scale incrementalism is likely. In this case BPR proponents have criticized the practice of organisations with partial quality management, rather than TQM itself. This may render more acceptable the failure of Hammer and Champy and others to come to grips with TQM. However, Hall et al. (1993) have argued that BPR initiatives have also tended to be too narrow or partial, because they take place within functions and departments rather than across the organization. That is, they lack effective managerial stewardship, and they are not integrated with the holism of organisational change (Hill and Wilkinson, 1995).

It could appear that BPR is less likely to succeed outside TQM, since it uses the methods, process, and customer orientations of TQM to deliver step changes. If it does so on an ad hoc basis, without the training, experience, and organisational infrastructure that TQM takes for granted, it might be anticipated that organisational resistance would be greater than in a culture where planned quality change is taken for granted. Could this help explain the high failure rate among first time BPR projects? No, as argued by Zairi and Sinclair in their 1995 study of UK organisations (Zairi and Sinclair, 1995), very little distinction exists between TQ and non-TQ organisations, and the successful integration with BPR.

Cole (1994) concludes that an extraordinary amount of overlap exists between the quality and reengineering movements, and that the two initiatives complement each other. He believes that each component of the “quality house” is a building block onto which subsequent change programmes should build. Similarly, Thomas (1994), writes about the “aesthetic of manufacturing”, that simultaneously achieves mastery over current processes, promotes
continuous improvement in those processes, and prepares for transformational change. Most authors would seem to agree that if BPR helps focus attention on transformational change, without damaging core competencies and continuous improvement, it could effectively contribute to a total quality framework that will benefit the whole organization. Looked at in this way, Gadd and Oakland (1996) argue further that TQM and BPR can be considered as two distinct and different approaches capable of coexisting in the same organization, but used at different times to achieve different levels of performance improvement.

Understanding Organizational Processes

Both Deming (1993); Senge (1990) have written about the importance of systems thinking in understanding workflow, business processes, and the impact of feedback. In any system, events will occur that have an effect elsewhere in the system, and possibly on the event itself. In order to have a full understanding of the effects of what is being done, it is necessary to understand the whole process and how it fits into the organisational system.

IT has the capability of providing the means to achieve breakthrough performances in organisational systems. The vision, however, must come from understanding both the current and potential processes. This reality requires a more holistic view than that taken in traditional TQM programmes (Chang, 1994; Petrozzo and Stepper, 1994). The changes documented by Hammer (1990) at Ford, and by Davenport and Short (1990) at Xerox, involved radical redesign of the processes concerned. Cranswick (1994) reports that many Australian companies have undergone similar radical redesigns, such as the following examples:

- FAI Insurance’s extensive use of IT is only a small part of its total reengineering process. It is used primarily to facilitate the cross-functional thinking that is needed for successful reorganisation.

- Ansett Australia purchased an off-the-shelf revenue management system, knowing full well that other airlines were buying the same product. Their strategic advantage came from the overall integration of system design into the human fabric of both organisation and client, rather than from the system itself.

- Penfolds and Seppelt identified that consistency, flexibility and availability of information emerged as issues that needed to be tackled if the company was to maintain a competitive framework. After much internal consultation, their IT staff number was cut from 32 to 16, and the company implemented a programme to roll out electronic data interchange services to its suppliers.

- Defence Acquisition Organisation (DAO) began the Government-endorsed Defence Reform Program 1 July 1997, with all aspects expected to be completed within 4 years. The DAO’s business processes are to be re-engineered to achieve substantial efficiencies and greater effectiveness focusing on the consolidation of support and administrative function, reduction in committees and senior officers (staff reductions of approximately 20%), and the collocation and reorganization of acquisition functions, into groups focusing on common industry sectors or equipment types.

The total expected annual savings of $50 million will be directed to enhancing military capabilities and combat elements. Some of the reengineering literature advises starting with a
blank sheet of paper and redesigning the process anew. The problems inherent in this approach
are the danger of designing another inefficient system, ignoring the embedded system knowledge
accumulated over many years, and not appreciating the scope of the problem (Petrozzo and

Therefore, many authorities (Klein, 1994; Grover and Malhotra, 1997; Stoddard and
Jarvenpaa, 1995) recommend a thorough understanding of current processes before embarking
on a reengineering project. Current processes can be understood and documented by flowcharting
and process mapping. As processes are documented, their interrelationships become clear and a
map of the organization emerges. The aim of BPR is to make discontinuous, major improvements.
This invariably means organisational change, the extent of which depends on the scope of the
process reengineered.

As these cross-functional processes are reengineered to improve added-value output and
efficiency, many organisations are now questioning the need or even the relevance of traditional
functional structures, and are beginning to organize around core processes. In essence these are
the processes that control the flow of real and virtual resources within an organization (Kaplan

THE REENGINEERING CHALLENGE

A study of “The State of Reengineering” was conducted in early 1994 by Champy (1995),
and included 621 companies, representing a sample of 6000 of the largest corporations in North
America and Europe. The study showed that 69% of the 497 American companies, and 75% of
the 124 European companies responding were already engaged in one or more reengineering
projects and that half of the remaining companies were thinking about such projects. However
Champy (1995) found that substantial reengineering payoffs appear to have fallen well short of
the potential goals reengineering the Corporation had set:

• 70 percent decreases in cycle time,
• 40 percent decreases in costs,
• 40 percent increases in customer satisfaction, quality, and revenue, and
• 25 percent growth in market share.

Although little information is available on the 71 percent of the ongoing North American
reengineering efforts in the sample, overall, the study showed that participants had failed to
attain these benchmarks by as much as 30 percent. This leads to the conclusion that the
thoroughly reengineered corporation is as yet a rarity. The problem, it would seem, is that
reengineering of the corporation is not extending to actual management practice. This is typified
by three vice presidents (for sales, service, and order-fulfillment) at a major US computer
company, who were thrilled that reengineered work processes promised to cut product introduction
time in half, raise customer retention rates by 20 percent, and slice 30 percent from administrative
costs in their areas. They were not thrilled enough, however, to willingly give up control of their
functional areas and collaborate. As a result, the reengineering effort died a year after its
inception. In this case, senior management’s leadership was not strong enough to implement a
change in the pattern of shared values, beliefs and rules for behaviour—their culture (Davis,
1984).
Reengineering horizontal processes such as order fulfillment, new product development, and service delivery, so they become distinctive competencies that competitors cannot readily match is very different from managing a vertical function in a traditional hierarchical organization. Day (1994) notes three distinctive tenets that must be understood by senior management before reengineering is undertaken:

- the change to process management emphasises external objectives. These objectives may involve customers’ satisfaction with the outcome of the process,
- coordinating the activities of a complex horizontal process, will require boundaries and horizontal connections to be made—culture change, and
- unfiltered information that is readily available to all team members, so as to facilitate the learning process (Senge, 1990).

The loan approval process within IBM Credit illustrates both the problems and benefits of managing a process so it becomes a distinctive capability, rather than simply a sequential series of necessary activities. Often this process is obscured from top management view because it links activities that take place routinely as sales forecasts are made, orders are received and scheduled, products are shipped, and services are provided (Shapiro et al., 1992). In another example, Marriott Hotels is able to consistently receive the best ratings from business travelers and meeting planners for high-quality service. They are certainly as capable as Hyatt, Hilton, and others at selecting good sites, opening new hotels smoothly, and marketing them well (Irvin and Michaels, 1989). What consistently sets them apart and reveals a distinctive service core competency is a “fanatical eye for detail”. This begins with a hiring process that systematically recruits, screens, and selects from as many as 40 applicants for each position and continues through every hotel operation; for example, maids follow a 66-point guide to making up bedrooms. The effective management of these linked processes, within an organisational culture that values thoroughness and customer responsiveness, creates a distinctive capability that gives Marriott employees clear guidance on how to take the initiative to provide excellent customer service.

**Organizational Redesign Using BPR**

BPR is not intended to preserve the status quo, but to fundamentally and radically change what is done; it is dynamic. Therefore, it is essential for a BPR effort to focus on outcomes rather than tasks, and the required outcome will determine the scope of the BPR exercise. Schaffer and Thomson (1992) highlighted how focusing on results rather than just activities makes the difference between success and failure in change programmes. The measures used, however, are crucial. At every level of reengineering, a focus on outcome gives direction and measurability; whether it be cost reduction, head count reduction, increase in efficiency, customer focus, identification of core processes and non-value-adding components, or strategic alignment of business processes. Benchmarking is a powerful tool for BPR and is the trigger for many BPR projects, as in Ford’s accounts payable process. The value of benchmarking does not lie in what can be copied, but in its ability to identify goals (Richman and Koontz, 1993; Earl and Khan, 1994). If used well, benchmarking can shape strategy and identify a potential competitive advantage (Zairi and Leonard, 1994).
Hamel and Prahalad (1989, 1990, 1991) established that strategic direction via intent, rather than portfolio analysis, should be the key to an organization’s core competencies, and that through expeditionary marketing, this should lead on to developing the skills required to achieve the intent. Establishing its core processes focuses a company on what it does, how it does it, and how it should do it. Core process redesign can thus channel an organization’s competencies into an outcome that gives it strategic competitive advantage (Kaplan and Murdoch, 1991). The key element is visioning that outcome (Goss et al., 1993).

The Redesign Process

Central to BPR is an objective overview of the processes to be redesigned. Whereas information needs to be obtained from the people directly involved in those processes, it is never initiated by them. Even at its lowest level, BPR has a top-down approach (Hammer and Champy, 1993). Therefore, most BPR efforts take the form of a project (Earl and Khan, 1994). There are numerous methodologies being proposed, but all share common elements. Typically, the project takes the form of several discrete phases (Carr and Johansson, 1995).

People need to be equipped to assess, reengineer, and support—with the appropriate technology—the key processes that contribute to customer satisfaction and corporate objectives (Coulson-Thomas, 1993). Therefore, BPR efforts can involve substantial investment (Petrozzo and Stepper, 1994), but they also require considerable top management support and commitment. Critical to the success of the redesign is the make-up of the reengineering team. Most authors suggest that the team should comprise the senior manager as sponsor, steering committee of senior managers to oversee overall reengineering strategy, process owner, team leader, and redesign team.

This structure varies depending on the author. For example, Harrington (1991b) referred to executive improvement teams and process improvement teams, rather than steering committees and reengineering teams. Champions (team leaders) and czars (sponsors) were also referred to, and, depending on the scope of the reengineering effort, the sponsor, process owner, and leader may be one or more people (Hammer and Champy, 1993). The process owner is someone given the responsibility for the overall reengineering of a specific process.

The project approach to BPR suggests a one-off approach. When the project is over, the team is disbanded and business returns to normal, albeit a radically different normal. It is generally recommended that an organization does not attempt to reengineer more than one major process at a time, because of the disruption and stress caused. Therefore, in major reengineering efforts of more than one process, as one team is disbanded, another is formed to redesign yet another process. Considering that Ford took 5 years to redesign its accounts payable process (Davenport, 1993c), BPR on a large scale is a long-term commitment. In a rapidly changing business environment, it is becoming more likely that companies will reengineer one process after another. Competitive advantage is a dynamic goal—one that does not stand still (D’Aveni, 1995).

Once a process has been redesigned, most authors call for continuous improvement of the new process by the team of people working in the process. That is, organizing work around people which fosters interaction, understanding, and responsibility. The dissemination of
information via IT further empowers the team to make decisions, and inevitably, results in a delivering of management structures.

**Risks in Embarking on a BPR Programme**

Carr and Johansson (1995) identified two types of risk in the implementation of BPR: Technical Risk, which is a fear that the process changes will not work, and Organisational Risk, by far the greatest risk, which is the possibility of corporate culture reaction against the changes. It is also noteworthy that only 44 percent of respondents to the Carr and Johansson survey cited that they would accept more than a modest amount of risk during implementation. Thirty seven percent of respondents cited multiple communications with employees as a critical must do, in order to minimize the risks in a reengineering effort. The message should be simple, involve top management, and must be communicated as early as possible so that understanding and buy-in is created at the start of the project. Another methodology cited by Carr and Johansson in the reduction of risk is to demonstrate the success of reengineering through the implementation of precisely targeted pilot programmes. They help communicate strategy, and can also reinforce management commitment and create user buy-in.

It is clear that there is ambiguity in the literature as to what constitutes BPR. Although it has some commonality with Total Quality Management, for example, the concept of continuous improvements, BPR is a radical redesign of business processes to achieve dramatic improvement. A range of tools and techniques can be used for process improvement including process visualisation and flowcharting, operational method studies, organisational change software packages, benchmarking, and process and customer focus groups. BPR has thus achieved popularity amongst businesses in a very short period of time. Consultants have heavily promoted it, with very mixed results amongst companies that have implemented BPR. Empirical research in BPR has been lagging for behind and it presents the academic community with a considerable opportunity. Based on the literature review presented in this chapter, we identify below a number of research topics that can be researched by the academic community.

1. BPR, corporate objectives and organisational structure—investigating the link between BPR and long-term corporate objectives and how these impact on the structure of the organization.
2. The relationship between the adoption of BPR tools and techniques and business performance.
3. Best practices relating to the adoption of BPR tools and techniques.
4. The extent to which the different elements of TQM facilitate the success of BPR projects.
5. Best practices in managing BPR projects—lessons learnt from successful and unsuccessful BPR projects and identifying the factors critical to success.
6. The role of process owners (and customers and suppliers) in BPR projects.
7. Team work in BPR.
8. The role of top/senior management in successful BPR implementation.
9. Managing the risks involved in BPR.

Rigorous, empirically based research in the above areas can help in demystifying the ambiguity that exists concerning BPR. What is clear from the review presented in this chapter is
that BPR must be seen as a strategic, cross-functional activity that needs to be integrated with other aspects of management if it is to deliver benefits for the organization. The key requirement is that managers understand, in detail, the current business processes before embarking on a BPR project. The application of IT can provide major improvements in the performance of business systems, and while considered a major part of the reengineering activity, must be integrated with the needs of all stakeholders in mind.

Hammer (1990) considers Information Technology (IT) as the key factor in BPR for organization that wants to witness a “radical change” in its operation. He prescribes the use of IT to challenge the assumption inherent in the work processes that have existed since long before the advent of modern computer and communications technology. He argues that at the heart of reengineering is the notion of discontinuous thinking or recognizing and breaking away from the outdated rules and fundamental assumptions underlying operations. These rules of work design are based on assumptions about technology, people and organizational goals that no longer hold. Aremu and Saka (2006) argued that Information technology (IT) is a strategic resource that facilitates major changes in competitive behavior, marketing and customer service. In essence, IT enables a firm to achieve competitive advantages.

Davenport and Short (1990) further posted that Business Process Reengineering requires taking a broader view of both Information Technology (IT) and business activity and of the relationships between them. IT should be viewed as more than an automating or mechanizing force; to fundamentally reshape the way business is done.

Information technology (IT) and Business Process Reengineering (BPR) have recursive relationship. IT capabilities should support business processes and business should be in terms of the capabilities IT can provide. Davenport and Short (1990) refer to this broadened, recursive view of IT and BPR, as the new industrial engineering business process represent a new approach to coordination across the firm; IT promises and its ultimate impact is to be the most powerful tool for reducing cost of coordination (Davenport and Short, 1990).

Information Technology is an essential enabler of BPR. An awareness of the capabilities of modern Information Communication Technology is essential because, the reengineering effort is provided with options for radical redesign. Examples of technologies that enable BPR include the following:

a) **Shared databases**: Availing information in many places simultaneously. Work can thus be performed simultaneously, rather than sequentially, as it was before shared databases.

b) **Telecommunication networks**: These allow organizations to be centralized and decentralized, at the same time. Telecommunication networks enable branch offices to access information and thus be more empowered and serve customers better while still enabling organizations to maintain central control of operations.

c) **Decision support tools**: These knowledge management tools allow decision-making to be a part of everybody’s job.

d) **Wireless data communication and portable computers**: Allowing field personnel to work office independently.

e) **Automatic identification and tracking technology**: Such technology enables remote tracking of assets thus resolving the need to establish where the assets are located.
It is important to involve employees in re-designing new processes and adopting the appropriate IT solutions.

Quality management is based on applying continuous change or fine-tuning across an enterprise. Hans states, “Reengineering should be incorporated within the TQM framework of management as a valuable tool” (Hans, 1994:3). First, it was highlighted that perfection does not appear from day one. That is, once a new process is conceived, we need to improve it through continuous improvement. In addition, it is not viable based on the economics of scale to keep on reengineering the redesigned process. Secondly, it facilitates in the smooth transformation from one phase to another. This is achieved by teamwork or individual people efforts. However, to get full cooperation from participants a cultural change has to be initiated, and that is where TQM comes in. The author co-opts two important concepts in this article that is reengineering and total quality management. The chapter has explicitly stipulated the uniqueness of both concepts and how they collaborate with each other to provide a competitive advantage.

BPR and TQM Both have similar focus such as customer satisfaction, streamlined process, and commitment to improve performance. Combination of these two efforts can enhance full participations among different functional team, as well as, reducing if not eliminating the resistance towards a new redesigned process. This promotes interdisciplinary and cross-disciplinary collaboration, thus developing an effective and efficient system. It was clearly understood that TQM provides the essential support to enable BPR. This is by initiating the change of people behavior and attitudes creating an amicable environment. Nevertheless, it can be said that TQM approach is dynamic in nature, because, as customer needs (internal or external) keeps on changing, the redesigned process has to be improved in accordance the needs. Therefore, embedding continuous improvements into the redesigned process is an excellent approach.

Halachami, A., Bovaird Tony (1997) stated in “Process reengineering in the public sector: Learning some private sector lessons” that the possible applicability of Business process reengineering to organizations in the public sectors is explored through analysis of the central issues in BPR and the emerging experience of organizations which have recently implemented it. Author suggests that success of reengineering may depends critically on the strategic capability of the organization prior to undertaking the effort. For that reason, well performing organizations are more likely to improve performance by means of BPR than are weak ones. Yet in the public sector, it tends to badly performing agencies which are most encouraged to undertake BPR. Knowing and understanding the reasons for success or failure of BPR in private organizations can prepare public sector managers for undertaking the effort, but each reengineering initiative must be tailored to the specific needs and circumstances of the individual agency. Public sector managers should use the widest possible definition of ‘value’ when analyzing value-added in process reengineering and should be specially sensitive to the way in which ‘value’ in the public sector is differently interpreted by major stakeholders. During this learning process, public sector agencies would be well advised to be conservative in estimating gains from BPR. Author observed that there are major differences between the case of reengineering in the public and private sectors. Especially in respect of the core value generation process which underlies the reengineering effort and in the criteria used in deciding whether or not to launch a BPR initiative. The success of a reengineering effort may depend critically on the strategic capability of the
organization prior to undertaking the effort. Well performing organisations, public or private, are more likely to survive BPR and to improve performance than weak ones. Yet, in the public sector, well-performing agencies may not be permitted to go through BPR, while those that have been subject to recent criticism are likely to be encouraged even if the effort fails to improve performance. While the experience of BPR in the private sector is indeed of importance to the learning of managers in the public sector, managers in either sector should not expect the experiences of others to provide tailor-made solutions to their specific problems. Knowing and understanding the reasons for success or failure of BPR in the private sector can prepare public sector managers for undertaking the effort, but it cannot automatically indicate to them a preferred model for reengineering.

However, as more accounts of successful and unsuccessful cases of reengineering are documented, it may be possible to undertake the development of a generic model(s) of reengineering by sector. For the present, public sector managers should pay particular attention to the widest possible definition of ‘value’ when analyzing value added in the process reengineering effort. In doing so, they will need to be especially sensitive to the way in which ‘value’ in the public sector is differently interpreted by the major stakeholders and the intensity with which stakeholders (both internal and external) identify with the processes whose radical redesign is intended. In the interim, they would be well advised to be conservative in estimating the gains from BPR.

The Cultural Challenge of BPR

The most fundamental issue in relation to BPR capacity is, however, whether organizations can generate and survive the cultural change which BPR requires. Hence, we must examine the role of organizational culture in the introduction of a change such as BPR (Tichy, 1983). Organisational culture is commonly referred to as the “values, beliefs, traditions, philosophies, rules and heroes shared by all members of the organization” (Gatewood et al., 1995, p. 19). BPR requires the organisation to do away with everything it had in the past, including its previous culture, because the old culture is related to (indeed may partly be the reason for) the unsuccessful way the organisation previously conducted its affairs. Replacing the existing culture should be one of the stated this goals, which the paradoxes that the impetus for change has arisen from that same culture, that a strong common culture can facilitate the change process, and that a change which does not threaten the existing organizational culture stands a better chance of being successful.

Danny Miller (1992) has argued strongly, a strong organizational culture can easily lead to an organization’s destruction rather than its success, unless that strong culture embodies a willingness and ability to be adaptable — it can represent a rut rather than a superhighway. Once BPR is accepted by the organisation, there is an assumption of periodic radical change. The mindset needed to go down this road is very different from that typically found in bureaucracy, whether in the public or the private sector.

Reengineering can produce permanent cultural changes (Attenello, Janson and Uzzi, 1995). It alters people’s behavior, culture, technology and processes (Al-Mashari and Zairi, 2000). BPR changes the organizational culture, because redesign projects generally include attempts to alter the organizational subsystems of management (values, style, measures), people (skills, jobs,
culture), information technology and organizational structures, containing team and coordination mechanisms (Guha, Kettinger and Teng, 1997). The goal of such a process transformation is the improvement in process products and services sizing up in terms of quality, cost, customer satisfaction or shareholder value. In order to achieve a cultural change, the communication should be improved and leadership reinforced (Leth, 1994; Teng, 1994). More overt forms of control are also prescribed since monitored or controlled work disturbs the corporate culture (Davenport and Nohria 1994).

BPR occurs with the presence of various elements of organizational alternations like change in management style, labor relations and organizational design (Champy and Hammer, 1993). It requires a far-reaching cultural change, besides the spheres of reengineering of processes’ flow and structures around them (Davenport, 1993). Albizu and Olazaran (2006) analyzed BPR practices in 20 companies from seven European countries. They found that companies with labor relations based on collaboration of different actors or those based on social economy had beneficial cultural conditions for overcoming reluctance to change and for launching decentralized work systems. On the contrary, some companies met extensive difficulties in BPR introduction when reengineering destroyed its deeply rooted values by means of wrong way of its implementation or conceptualization. The companies that applied varying change programs (e.g. BPR) have created a culture that was later consolidated into a company as a value. In other companies that did not go that far, the improvement in cultural values after BPR implementation regarded company institutionalization, cooperation, quality, customer-based approach and joint responsibility. In UK Probank, in conjunction with reengineering, there was a trial to change the organizational culture, initially through team working (McCabe, 2004). Business process reengineering in Samsung, in turn, created a new corporate culture that became more internationally oriented and rested on productivity, rather than long working hours (Choi, 1995)

BPR in USA, Europe and India

USA and some countries in Europe are termed as ‘developed economy’ today, while India is a ‘developing economy’ along with other emerging economies like China, Brazil, Russia, Mexico, Turkey and Indonesia. Historically, as we have seen earlier, Michael Hammer from USA promoted the cause of BPR, being one of the earliest advocates of this theory. American companies were enjoying monopoly in the days of mass production factories with their huge assembly lines. Japanese threatened this monopoly with their superior quality products offered at cheaper prices. This led to a re-thinking process in US which ultimately resulted in the development of BPR methodology.

The European industry, on the other hand, is supposed to be quality conscious from the beginning. The stringent norms in Europe made it possible for their manufacturing industry to be ahead of their counterparts in US. This has been apparent with Automobile Industry in Europe following stringent Euro-II Norms.

Of late, the Indian Automobile Industry has also caught-up with them by adopting the Euro-II compliance. India’s quality movement is dominated by adoption of ISO 9000 and TQM by large number of business houses (See Figure 2). The open competition with other global companies has brought in a lot of innovation in the business model of Indian companies. Lately,
we have seen the acquisition of British companies like Land Rover and Jaguar along with Anglo-Dutch Corus by TATA from India. Other Indian stories include Tata Tea taking over Tetley, Infosys acquiring Axon, Mittal Steel merging with Arcelor etc. What all this suggests is there has been always a change dynamics; unpredictable to follow. The businesses today are more competitive, face stiffer global competition, then again face a very thoroughly informed customer; justifying the need for BPR. Mahindra Keshub, Chairman, Mahindra & Mahindra (1996), said that “In our never ending quest for quality and increasing productivity at all levels, the various projects initiated by the company - including BPR - are helping us achieve higher productivity, reduction in costs and improved quality.”

**Figure 2: Quality movements and adoption**

By the mid 1990s, BPR had become a popular tool globally, with many leading organizations implementing it. However, when Mahindra & Mahindra undertook the exercise, it was still a new concept in India. M&M’s workforce, as mentioned earlier, resisted this attempt to reengineer the organization. Soon after the senior staff began working on the shop floors, the first signs of the benefits of BPR became evident. Around a 100 officers produced 35 engines a day as compared to the 1200 employees producing 70 engines in the pre-BPR days.

After five months, the workers ended the strike and began work in exchange for a 30% wage hike. As the situation returned to normalcy, BPR implementation gained momentum. M&M
realized that it would have to focus on two issues when implementing the BPR program: reengineering the layout and method of working. The case examines the reasons of decision to implement a Business Process Reengineering (BPR) program. This case explores in detail the implementation procedure at the company and the benefits that accrued from the BPR program. In addition, the case discusses the concept of BPR, its benefits, and the steps that need to be taken to ensure the success of such initiatives.

Hai-yan, H., Yong ZHANG (2008) point out in their research (“Research on the Theories and Methods of Government Administration Process Diagnosis and Reengineering”) that the government administration is a dual process of business management and information management, and the government business process is the exterior of the information flow, however, the traditional bureaucracy structure of government organization is in contradiction with the network demands of information flow, which inevitably leads to the government administration efficiency losses; based on the business process reengineering theory, diagnosing the existing problems in government administration through the information flow, as a starting point affects the realization of the government business process reengineering, and provides the general methods and models.

Hunt, L, Kathi, Hansen, A. Gregory (1997) “Simulation success stories: business process reengineering” identified in this rapidly changing economy, businesses are constantly seeking newer, simpler methods which will help them remain competitive. In this quest, they have discovered that simulation provides a structured environment in which they can better understand, analyze, and improve their processes. We are going to look at three businesses that have found simulation instrumental in their pursuit of perfection: the US Postal Service, National Cash Register, and a diversified energy corporation. He concluded that Simulation is an effective tool in the analysis and redesign of business processes. It has assisted numerous corporations, government agencies, and universities to realize their goals and gain a better understanding of the way things work. Whether you’re designing a product, improving productivity, or reengineering your entire business operations, simulation can be a crucial tool in your reengineering efforts.

In order to facilitate the project construction management more scientific, standardized, process-oriented and institutionalized, Ming, Li, Lei, Li, & Chun, Jing, Feng (2010) summarized in “Research on the Theory Framework of Project Construction Management Process Reengineering” the thinking and practice of process reengineering, in combination with the actual needs of project construction management, it studies and puts forward the concept, characteristics, principles, methods and steps of process reengineering in project construction management, forming the theoretical skeleton and system of process reengineering in project construction management. The conclusion of the study has great significance on the practice of project construction management.

1. It is concluded that Process Reengineering during the project construction and management has necessity and feasibility by investigation and study.

2. Ideas and practices about Process Reengineering are analyzed. Combining with the actual needs of project construction management, the theoretical framework of systems of project construction management is proposed, which includes the concepts, characteristics and principles of the process reengineering during project construction management.

Vol. 8, No. 2, December 2014
(3) The four stages of project construction management process reengineering are proposed, and the various stages of the main tasks are described.

**REENGINEERING METHODOLOGY**

To put BPR into action, methodological choices play a key role for the success of BPR. Wastell (1996) proposed a PADM methodology (process analysis and design methodology) having four phases: process definition, baseline process selection and representation, process evaluation, and target process design. Davenport and Short (1990) presented a methodology containing five steps: develop business vision and process objectives, identify redesign processes, understand existing processes, identify IT levers, and build a prototype of the process. Furthermore, every methodology has its own specialties and properties, leading BPR project planners to be confused by the choice of methodologies.

Thus, Kettinger (1997) derived a composite stage-activity methodology for the reengineering processes based on the descriptions of 25 BPR methodologies. Basically, it includes six stages (S): envision, initiate, diagnose, redesign, reconstruct, and evaluate; each stage is further subdivided into certain activities (A). This methodology only provides project planners with a methodological archetype. However, no two BPR projects are exactly alike, because of the unique characteristics of projects and the amount of changes sought in organizations. This creates confusion for how to fit the characteristics of processes with the various versions of the methodology. He observed that the methodological choices for BPR also differ due to the deviation of the strategic paths for BPR. First, if BPR is not based on strategic perspective, there will be no obvious way to proceed. This causes a high percentage of failures. Secondly, functional coupling framework associated with IT applications helps BPR project planners set high-level reengineering paths before BPR implementation. This may help to guarantee the success of the BPR, because reengineering directions and guidelines are set in advance.

Muthu Subramanian, Whitman Larry and Cheraghi S. Hossein (1990) “Business process reengineering: A Consolidated Methodology” provide a review of BPR and present ‘best of breed’ methodologies from contemporary literature and introduce a consolidated, systematic approach to the redesign of a business enterprise. The methodology includes the five activities: Prepare for reengineering, Map and analyze as-Is process, Design To-be process, Implement reengineered process and improve continuously (See Figure 3). And conclude that an intense customer focus, superior process design and a strong and motivated leadership are vital ingredients to the recipe for the success of any business corporation. Reengineering is the key that every organization should possess to attain these prerequisites to success. BPR doesn’t offer a miracle cure on a platter. Nor does it provide a painless quick fix. Rather it advocates strenuous hard work and instigates the people involved to not only to change what they do but targets at altering their basic way of thinking itself.

Wastell, D G, White P. and Kawalek P. (1994), describe a flexible and extensible methodological framework (called PADM) for BPR which has been developed on the firm basis of several years of practical experience. PADM is an eclectic methodology. It has been strongly influenced by a number of methodological approaches, most notably soft systems methodology and socio-technical systems design. The main features of PADM and describes three recent case studies which show the range and variety of BPR initiatives. A number of issues are taken up in the
discussion. The need for a flexible and adaptable methodology is stressed given the broad spread of studies subsumed under the BPR rubric. The dangers of process automation are illustrated and the need for a socio-technical perspective is underlined. Business process redesign entails organizational change. Many of our case studies fell short of their anticipated impact; various explanations are discussed (politics, culture, information technology inertia). The author concludes by outlining several fruitful areas for further research and describes a number of aspects of our current work. If they are to be used effectively, methodologies need good tool support. Another important area of our work is the development of a set of tools to support PADM. This toolset is known as PMW, the Process Modelling Workbench, and includes tools which allow the creation and editing of our main modelling notations (e.g. RADs and activity diagrams). PMW includes some support for quantitative process analysis, using simulation techniques to identify critical paths, cycle times, work flow-rates, bottlenecks etc. The toolset will also allow processes to be viewed at different levels of abstraction and from different user (senior manager, line manager, the ‘shop floor’) and process perspectives (functional, informational, etc.).

Soft systems methodology (SSM) was developed at Lancaster University (UK) and is closely associated with the name of its originator, Peter Checkland (1981). SSM is, in essence, a technique for solving, or more aptly ‘structuring’, complex unstructured problems. The technique is gaining wider and wider currency in many areas. It has attracted particular attention in the information systems field (Wood-Harper et al., 1985; Lytinen, 1988; Checkland and Scholes, 1990; Flynn, 1992) as a means for exploring and defining user requirements. In brief, SSM works as follows. There are three main phases. In the first phase, the investigator forms a detailed understanding of the problem-situation, a so-called rich picture. The second phase, in contrast, involves disengagement from the real world into the realm of pure systems thinking.
Conceptual models, not of how the world is, but of what it could or ought to be are constructed, based on a number of possible relevant perspectives. The final phase involves a comparison of these imaginary worlds with the actual problem situation, in order to orchestrate constructive discussion, to throw light on what is wrong, and to suggest practical courses of action to improve the situation.

Various exploration methods give the prospective users a chance to tackle complex problems by means of computer. Rajal Mikko, Savolainen T., Jagdev H., (1997) consider two key methodologies within the domain of exploration methods: simulation modelling and value analysis (VA). With worked-out examples, authors show, by using the techniques adopted from traditional manufacturing process control, how this problem can be tackled. For retrospective studies focusing to understand and manage internal process variation, statistical process control (SPC) charts together with the failure modes and effects analysis (MEA) method is a powerful tool. For prospective studies, focusing to understand and manage the effects due to variability of customer needs, information generated in quality function deployment (QFD) analysis is suggested to be used. All information generated by studies can be used in simulations using Taguchi cross-product redesigns. When the object of VA is a business process instead of a product, the paper also describes how these methods can be applied to business process re-engineering (BPR). The creative problem solving power of VA is especially helpful in BPR. The small improvements can be achieved via the logical analysis and modelling methods but the radical breakthrough improvements require often creative problem solving, in addition to modelling. Application of the methods is exposed through a business process example of Neste Advanced Power Systems Finland solar power systems manufacturing, using IDEFO models to be translated for simulation via colored Petri nets. The author conclude that the joined methodology offers a practical advantage for managing simulation studies needed in business process redesign.

Reengineering which is a situation when a business organization is transforming processes that together form a component of a larger system aimed at enabling organization to empower themselves with contemporary technologies business solution and innovations. In the context of changing customer expectations, technological discontinuities, increasing environmental uncertainties, business managers have a big challenge of making the right strategic choice and setting their strategic priorities, in order to allocate their resources to different functions in an efficient manner for business success.

Most of the aim of reengineering a business performance is to redesign the existence of a business practices, in order to achieve improvement in performance. Indian Managers must develop new tools, new concepts, new organization and the new mindsets to cope with the turbulent and chaotic environments leading to continuous change. This can only be achieved through effective and efficient reengineering of their business.

**Status of BPR in research and Research Gap**

Business process reengineering as a tool of quality management in manufacturing sector has been implemented in countries—USA, Europe, Japan, Korea, China, UK, France, Germany, and the Netherland etc. but implementation of business process reengineering in India is rare. The research works on business process reengineering as a tool of quality management for the
manufacturing industries/sectors located in USA, Japan, Europe, Korea, China, UK, France etc. have been done, while the research works and the use of this concept in Indian manufacturing industries (private and public) negligible at present. Here the investigation on business process reengineering as a tool of quality management in the context of Indian manufacturing industries is proposed for further research. The main objectives of this study are the following:

1. Identifying the current business processes in the Indian manufacturing sector.
2. To study the role of BPR in understanding Customer Requirements & Goals for the processes in organizations.
3. To study the effectiveness of implementation of BPR in organizations.
4. To understand the impact of BPR on improvement of efficiency and quality of life.

In this study the following hypotheses will be tested by the first author (researcher) of this chapter with the help of effective and suitable statical tools.

1. Business Process Reengineering organizations are making significant and wide ranging changes to their organizations in response to strategic business needs.
2. Business Process Reengineering highlights the importance of the human factors in implementation.
3. Business Process Reengineering requires a proper integration with the various other organizational subsystems and other techniques. It is not effective alone.

Researcher will achieve all the above proposed objectives and test hypotheses during their research work as a Ph.D. Scholar and systematically provide adequate information, data, result, etc. in written text form in their Ph.D. thesis. This chapter is also a part of researcher’s Ph.D. Thesis which helps them in their further research work.

Research work will be based on secondary and primary data sources. Questionnaires will be mailed to the internal auditing directors (IA’s), top management, BPR teams (stakeholders, core and extended team), BPR experts or IT experts and Quality managers of different Indian manufacturing organizations and personal visit will be done at the manufacturing organizations to collect the data. Published records of companies and other relevant agencies will be used as secondary data. Suitable statistical tools will be used for testing the hypotheses and analysis and interpretation of both these data.

Interestingly, the chapter shows that business process reengineering requires innovations and organizational change, in order to be successful. Also, as a matter of fact, Business Process Reengineering as a tool of quality management typically affects various variables in the organization such as people, employees, business, technology etc.

Finally, Business Process Reengineering has become useful tool for any corporate/ manufacturing organisations that is seeking for improvement in their current organizational performance and intends to achieve cost leadership strategy in its operating industry and environment. Reengineering process remains an effective tool for organizations striving to operate in the competitive world; organizations are required to re-engineering their business processes in order to achieve breakthrough performance, best quality and long-term strategy for organizational growth.
CONCLUSION

In this article, BPR was discussed in depth and width from its origin to the practical implantation and results. Literature showed that BPR is universal approach, however it is lacking agreement between researcher’s point of view as well as practitioner’s approaches. Different authors are having their own explanation and methodology for BPR and similarly it is concluded from the literature that BPR is customized approach i.e. every firm is using it in its own way to fulfill their requirements and needs. Furthermore, it is also found that the concept of BPR is mostly misunderstood and it is used just for IT induction or redesign of an organization. There is still a need for exclusive and universally acceptable model for BPR as well as a commonly applicable methodology.

On the basis of dimensions found in literature, author concluded five Schemes for successful implementation of BPR in Indian manufacturing sector (public & private both).

Scheme 1: Indian manufacturing organizations are less ready to initiate BPR efforts.

Scheme 2: Indian manufacturing organizations get conflicting benefits from BPR projects.

Scheme 3: BPR efforts need to be initiated top-down, in order to guarantee economic as well as political support and feasibility.

Scheme 4: A small-scale approach to BPR will increase success rates of BPR activities in the Indian manufacturing sector.

Scheme 5: Sharing of knowledge and experiences would positively impact the implementation of BPR in Indian manufacturing sector.

Thus, application of BPR in Indian manufacturing sector is not difficult, the situations are different and the reasons for adaptation vary in this sector.

Note: Study was based on secondary source i.e. published and available researches in the field of BPR and quality management. Research papers were critically reviewed and then were divided into sub headings i.e. introduction, defining BPR, BPR tools and techniques, QM and Continuous Improvement agendas, BPR methodologies, BPR and TQM coexistence, risks in BPR, Cultural Challenge of BPR etc. Study was restricted to the subject of available researches and to the specific objective i.e. to review the progress in this field of BPR mainly management oriented not to IT or engineering etc.

REFERENCES


Case study (code OPER008), Mahindra & Mahindra: implementing BPR, period (1990) –2001, publication 2005, Japan, pg. 1-12


Vol. 8, No. 2, December 2014


Sinha, R., Pankaj, (2000). BPR and TQM, Enterprise Engineering- IMfgE at Wichita State University, Article, pg. 4


